

METHOD FOR CALCULATING LEAKAGE SENSITIVITY FOR AN INTEGRATED CIRCUIT

ABSTRACT OF THE DISCLOSURE

5 An integrated circuit design has circuit macros made up of device cells. The
cells are characterized by determining the leakage current dependency on various
process, environmental and voltage parameters. When circuit macros are designed
their leakage power is calculated using this data and multi-dimensional models for
power and temperature distribution. Circuit macros are identified as timing-critical
and timing-noncritical macros. Statistical methods are used to determine the average
10 leakage sensitivities for the specific circuit macros designed. The designer uses the
sensitivity data to determine how to redesign selected circuit macros to reduce
leakage power. Reducing leakage power in these selected circuits may be used to
reduce overall IC power or the improved power margins may be used in timing-
critical circuits to increase performance while keeping power dissipation unchanged.